Module 2: What is Agile? Why use it?

TLO: Given a DoD program involved in software development, the student will recognize situations where applying agile development methods philosophy results in a positive benefit to the speed and efficiency of a software development effort.

ELOs

1 – Recognize Agile tenets and principles

2 – Recognize the characteristics of an agile environment.

3- Recognize common misconceptions of Agile

Assessment

MT – Agile principles are the foundation of “what is Agile” more than any one method or practice (ELO 1)

LP1 – X (ELO 1)

LP2 – Y (ELO 2)

MT - Agile is not a silver bullet, but there are conditions that could make it appropriate for use in a program (ELO 3)

LP3 – Z (ELO 3)

MT – Agile is not a license to de-value traditional approaches (ELO 3)

Module Vignette

What story do we want to tell as motivation and to support terminal learning objective

Module Contents

1- Agile motivation for software / systems (ELO 1, 2)

2- Agile tenets and principles (ELO 1)

3- Agile Methods Landscape (ELO 2)

4-Common Agile processes and methods (ELO 2)

5- Agile Myth-busting (ELO 3)

Subtopic 1: Agile motivation for software / systems

- What is Agile?
  - 30,000-foot introduction to steps in waterfall software development
  - 30,000-foot introduction to Agile software development through iterations
  - Important: Just design/build/test software tasks, not DoDI 5000.02 or V model detail
- What are the major motivations to using Agile
  - Increase operational tempo to deliver more frequently to the field
  - Problem and solution space lack definition
  - Alignment of efforts across multiple programs
- Major Takeaways
  - Major Takeaway 1: Agile is not a silver bullet, but there are conditions that could make it appropriate for use in a program

Subtopic 2: Agile tenets and principles

- Agile Manifesto
  - **Individuals and interactions** over processes and tools
  - **Working software** over comprehensive documentation
  - **Customer collaboration** over contract negotiation
  - **Responding to change** over following a plan
- 12 Agile principles (probably best to insert a slide that has them on)
- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Subtopic 2: Agile tenets and principles (cont.)

- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must work together daily throughout the project.
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
- Working software is the primary measure of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.

Subtopic 2: Agile tenets and principles (cont.)

- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.
- Major Takeaways:
  - Major Takeaway 3 – Agile Manifesto is not a license to de-value traditional approaches
  - Major Takeaway 4 – Agile principles are the foundation of “what is Agile” more than any one method or practice

Subtopic 3: The agile methods landscape

- A working definition of Agile
  - An iterative and incremental(evolutionary) approach to software development which is performed in a highly collaborative manner by self-organizing teams within an effective governance framework with “just enough” ceremony that produces high quality software in a cost effective and timely manner which meets the changing needs of its stakeholders. [Ambler 2013]
- Lean Thinking and Engineering Principles work in concert to deliver agility
  - Take an economic view
  - Apply systems thinking
  - Assume variability; preserve options
  - Build incrementally with fast, integrated learning cycles
  - Base milestones on objective evaluation of working systems
  - Visualize and limit Work in Process (WIP), reduce batch sizes, and manage queue lengths (apply concepts of product development flow)
  - Apply cadence; synchronize with cross-domain planning
  - Unlock the intrinsic motivation of knowledge workers
  - Decentralize decision-making

Subtopic 3: The agile methods landscape (2)

- Methodologies considered Agile
  - Scrum
  - XP
  - Crystal
  - TDD
  - DSDM
  - KANBAN
  - Disciplined Agile Delivery
  - Scaled Agile Framework

Subtopic 4: Common agile concepts and practices

- Agile is a team approach
- Observable characteristics of Agile Implementations
  - Incremental and iterative
  - Collaborative
  - Loosely coupled Architecture
  - Dedicated
  - Time-boxed

Subtopic: 5-Agile Myth busting

- Discuss common agile myths
  - Agile is a fad
  - Agile teams don’t document
  - Agile is “wild west” programming
  - Agile only works in co-located environments
  - Agile is just spiral renamed
  - Agile won’t work in DoD or Government environments
  - Agile only works on small projects
  - You can’t used EVM on Agile Software Developments